

United States Government

Department of Energy
Bonneville Power Administration

memorandum

DATE: September 14, 2001

REPLY TO
ATTN OF: KEC-4

SUBJECT: Supplement Analysis for the Watershed Management Program EIS (DOE/EIS-0265/SA-62)
and the Hood River Fisheries Project Final EIS (DOE/EIS-0241).

TO: Thomas Morse
Fish and Wildlife Project Manager

Proposed Action: Hood River Fish Habitat Project

Project No: 1998-021-00

Watershed Management Techniques or Actions Addressed Under This Supplement Analysis (See App. A of the Watershed Management Program EIS): 1.16 and 1.17

Spawning and rearing habitat enhancements; 2.1 Maintain healthy riparian plant communities; 4.9 Water conveyance: ditch and canal lining; 4.23 Intake and return diversion screens; 1.13 Culvert removal and replacement.

Location: Odell, Hood River County, Oregon

Proposed by: Bonneville Power Administration (BPA), Confederated Tribes of the Warm Springs Reservation of Oregon, and the Farmers Irrigation District.

Description of the Proposed Action: The project area is located on the Hood River, near river-mile 11 (Township 2 North, Range 9 East, Section 29). The Hood River flows south to north, adjacent to the project area with Joe's Creek entering on the east bank. Joe's Creek is an intermittent stream approximately 1,000 feet long on a high alluvial terrace at the base of a talus slope.

Farmers Irrigation District (FID) proposes modifying the intake and flume of the irrigation district's canal in order to reduce sediment that enters the canal. The modification consists of redistributing boulders and stream bottom material to shift the existing thalweg of Hood River toward the west, away from the intake, and installing two sediment excluder sills in the upper portion of the canal.

The FID also proposes installing a new transmission water line, which will replace an existing trestle and flume that presently links the irrigation district intake to a canal system that transports water into the low croplands of the Hood River Valley. In addition to the new transmission water line, a new fish screen would be constructed which necessitates a fish bypass that returns fish back to the Hood River. The existing fish screen is an older obsolete concept and the existing fish bypass consists of a small diameter flexible culvert. FID proposes a bypass system that not only returns fish to the Hood River but also increases fisheries habitat availability in the watershed. To accomplish this, a new channel would be created between the existing irrigation canal and Joe's Creek. The area of proposed new channel construction is entirely upland.

Proposed alterations in Joe's Creek consist of rearing pool creation, the installation of two culverts (one under an existing road and one near the outlet to Hood River), creation of a plunge pool at the outlet of the upper culvert and a series of jump pools extending 50 feet east of the confluence with the Hood River. The existing channel would be recontoured to handle bypass flows and enhanced to provide fisheries habitat.

The existing fish screen would be replaced with a new fish screen that would be constructed in a new concrete flume along the existing pipeline alignment. The new fish screen would be a horizontally oriented, 160-foot long flat plate screen, a relatively new type of screen called a Horizontal Flat Plate (HFP). The screen would be 10 feet wide at the entrance. Both of the screen sidewalls would taper evenly for 140 feet to an outlet transition throat which would typically be set to 24 inches wide. The transition throat would be of equal width throughout its 20-foot length. One of the screen sidewalls would be adjustable in order to allow for fine-tuning of the screen hydraulics and the outlet transition throat width. Water passing through the outlet transition throat would flow with a short plunge of approximately 0.7 feet to the headwater pool at the beginning of Joe's Creek, which is the fish return bypass system.

Approximately 95 cubic feet per second (cfs) of water diverted from the Hood River would flow through the Farmers Canal and be introduced to the fish screen approximately 1000 feet downstream from the point of diversion. Farmers Irrigation District has historic water rights for flow diversion. No new flows would be diverted. The water would flow from the canal to the flat plane of the screen, which is flush to and at the same elevation as the canal floor. When the system flow is at steady state, the total diverted water (95 cfs) would be split between the water to be used for irrigation or hydroelectric purposes (about 80 cfs) and the water to be used for fish bypass purposes (10 to 15 cfs).

The irrigation and hydroelectric water would pass through the plane of the screen with a uniform approach velocity of less than 0.1 feet per second (fps). The water that passes through the plane of the screen would collect in a sub-screen chamber, which would be open to a collection bay. Five feet away from the open interior "wall" of the collection bay would be the interior, adjustable stop log weir. This weir would ensure a minimum water depth (0.9 feet) over the screen and a uniform approach velocity through the screen. Water in the collection bay would pass through two control gates to the forebay for the transmission pipes. The control gates would automatically maintain the upstream water depth to a pre-determined elevation. The gates are adjustable and require no power or telemetric control.

Water that does not pass through the screen (10 to 15 cfs) would be conserved for fish bypass water, which would flow through the outlet transition throat to the Joe's Creek headwater pool. This bypass water would flow at velocities which will meet NMFS criteria. The sweeping velocity would gradually slow to about 5 fps and then smoothly accelerate to a final exit velocity of about 9 fps through the outlet transition throat and into the Joe's Creek headwater pool.

Joe's Creek is approximately 1,000 feet long from its origin to the Hood River. It has a narrow channel from 1 to 5 feet wide at top of bank and is intermittent except where small seeps and impoundments form forested wetlands within and adjacent to the channel. To utilize Joe's Creek as a fish bypass, 120 feet of new bypass channel would be cut into the current grade from

the new fish screen outlet to the intermittent channel. The new channel area is upland forest. Test pits indicate sand and cobble material is approximately 3 feet below current grade within the area where a new channel would be constructed. This material would be utilized to form a new streambed with the potential of cobble being imported if a large amount of sand and silt is encountered. Hydraulic analysis indicates cobble and small boulder material found in the test pits are of sufficient size to be retained in the return channel. Bypass flow is expected to vary from 10 to 15 cfs. The new channel would have a slope less than 1 percent, bottom width varying between 16 and 20 feet wide and top of bank width of approximately 30 feet. Changes in screen location and bypass outlet elevations would result in some adjustments to the channel alignment and grade. Large woody debris would be salvaged from the pipeline clearing and utilized to create habitat and form stream banks. Erosion control fabric will be used if the volume of wood material is insufficient to ensure bank stabilization.

Three pools would be excavated in the existing channel of Joe's Creek and large wood would be placed in the channel for fish habitat. Most of the cover and rearing habitat would be in the upper 500 feet of channel. The lower segment of Joe's Creek has a steeper gradient and would primarily function as a natural downstream passage to the Hood River. Small boulders and cobble exist within the steeper segment of Joe's Creek and are sufficient to resist design flows. A series of step pools would be designed for the final 50 feet of the channel. The step pools would be constructed from imported boulders and other natural material. This work would provide a smooth transition for downstream migrating juvenile fish from this relatively steep portion of channel into the Hood River.

No culverts presently exist within this portion of Joe's Creek. As part of the stream reconstruction, two new 48-inch culverts would be installed. One 48-inch by 20-foot culvert would be located under the existing access road, which presently blocks the upper reaches of Joe's Creek. Because no culvert exists under the access road, present high flows in Joe's Creek must breach the road to continue in the channel. A second 48-inch by 100-foot culvert would also be installed under the transmission pipeline structure to allow the pipeline to cross over Joe's Creek and prevent potential high flows in Joe's Creek from eroding the pipeline footings.

To provide hydraulic capacity in case of an unlikely failure in the fish screen facility, the new channel would be designed to convey up to 120 cfs. A retention berm would be constructed to prevent possible bypass channel overflow from eroding away at the transmission line footings. The berm would be constructed around the new fish screen outlet plunge pool and continue northeast along the existing access road for approximately 300 feet. The construction berm would then turn northwest and parallel Joe's Creek for another 200 feet. The berm would be approximately 4 feet high with 3:1 slopes and the footprint would be approximately 16 feet wide. The material used for constructing the berm would be a combination of onsite excavated material and imported clean fill. All exposed soils will be seeded with native erosion control mix after construction.

Analysis: Michael Lambert of the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) completed the environmental checklist for this project in May 2000. The checklist meets the standards and guidelines for the Watershed Management Program EIS and ROD, and the habitat improvement projects proposed in this action are representative of the

types of projects addressed in that EIS. Also, the Record of Decision for the Hood River Fisheries Project EIS recommended habitat improvement projects in the Hood River basin that are designed to reestablish spring Chinook salmon and increase natural production of steelhead.

The proposed project was delayed in order to finalize engineering in a manner satisfactory to the permitting agencies. Accordingly, the checklist does not incorporate final engineering, and includes some consideration of portions of the project that are no longer planned. However, because the final engineering is documented in several other documents incorporated into this Supplement Analysis, no change to the checklist was required.

Biological Assessments were submitted to the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) in June 2000. NMFS issued a Biological Opinion on August 17, 2001, listing terms and conditions necessary to comply with the Endangered Species Act. In a letter dated August 16, 2001, the U.S. Fish and Wildlife Service indicated that implementation of the NMFS terms and conditions would satisfy Fish and Wildlife Service requirements as well. Further, the NMFS terms and conditions were adopted as special conditions to the U.S. Army Corps of Engineers' Section 404 permit, and are designed to avoid, mitigate, or offset adverse impacts of the project on Essential Fish Habitat. NMFS and FWS have found that if the project is in compliance with the terms and conditions of the Biological Opinion, the project will not jeopardize the continued existence of Lower Columbia River steelhead, Lower Columbia River Chinook, bull trout, or coastal cutthroat trout.

The terms and conditions listed in the Biological Opinion, which the applicants are required to meet, are intended to ensure that the following reasonable and prudent measures are fully realized (from the NMFS Biological Opinion, p. 13):

1. Minimize the amount and extent of incidental take resulting from in-water work required to complete the project addressed in this Opinion by implementing measures to limit the duration and extent of in-water work.
2. Minimize the amount and extent of take and impacts on critical habitat resulting from erosion and chemical pollution associated with this project by implementing measures that minimize the movement of soils and sediment both into, and within, the river and minimize or avoid the potential for chemical pollution.
3. Minimize the potential for take associated with installation and operation of the FID Canal fish screen.
4. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

Notable among the terms and conditions are the instream work period, limited to July 15 – August 31. In order to control erosion and pollution, erosion control devices must be placed to prevent turbid water from entering the Hood River or other water bodies. A spill containment and control plan must be in place prior to construction.

The Farmer's Irrigation District must work with responsible agencies to be certain that the new fish screen meets the National Marine Fisheries Service acceptance standards for mortality or injury to juvenile salmonids. Those standards are explained in the Biological Opinion, page 15. The irrigation district must also take measures to monitor for stranded fish in the event of high flow events on the Hood River that might plug the canal intake with debris. The incidental take statement requires that any dead, injured, or sick listed species are handled in accordance with the instructions of the NMFS Law Enforcement Office.

Monitoring reports must be submitted to NMFS within 30 days and within one year after completion of the project. These reports will describe compliance with the reasonable and prudent measures, and the success of the project. Specifics of each of these monitoring reports are detailed on pages 15-16 of the Biological Opinion, and include photographic documentation of conditions at the site both before and after construction.

The project proponent must conform to the terms and conditions listed by the permitting agencies (and summarized above). The proponent has in place a program for public involvement, including providing regular presentations at local watershed groups, and maintaining contact with landowners in the vicinity. Cultural resources surveys have been completed by the CTWSRO and the State Historic Preservation Office has been consulted. Permits from the State of Oregon and the U.S. Army Corps of Engineers, as well as Biological Opinions from NMFS and FWS are in place.

Findings: The project is generally consistent with the Northwest Power Planning Council's Fish and Wildlife Program. This Supplement Analysis finds 1) that the proposed actions are substantially consistent with the Watershed Management Program EIS (DOE/EIS-0265) and ROD, 2) the Hood River Fisheries Project Final EIS (DOE/EIS-0241) and ROD, and, 3) that there are no new circumstances or information relevant to environmental concerns and bearing on the proposed actions or their impacts. Therefore, no further NEPA documentation is required.

/s/Richard Yarde

Richard Yarde

Environmental Specialist

CONCUR:

DATE: 9/17/01

Thomas C. McKinney
NEPA Compliance Officer

Attachments:

NMFS Biological Opinion plus cover letter (dated August 17)

FWS cover letter (dated August 16)

U.S. Army Corps of Engineers Section 404 Permits (two distinct permits)

Oregon Division of State Lands Permits (two distinct permits)
Environmental Checklist

cc: (w/ attachments)

Michael Lambert

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cc: (w/o attachments)

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